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## **Experimental Manipulation of Maternal Investment and Effects on Juvenile Viability and Size in *Physa acuta***

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Poster Presentation P2

**EXPERIMENTAL MANIPULATION OF MATERNAL INVESTMENT AND  
EFFECTS ON JUVENILE VIABILITY AND SIZE IN *PHYSA ACUTA***

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In oviparous reproduction there is a proposed relationship between maternal resources allocated to each egg and offspring viability. This balance between producing a viable next generation without over-expending personal resources has been previously studied in amphibians and sea urchin species. The freshwater snail *Physa acuta* continuously lays clutches of 5 to 50 eggs every 12 to 24 hours. Comparisons of egg capsules (n=375) laid by four individuals over the span of one week revealed that there was little variation in every capsule volume and clutch size among eggs laid by any individual. There were differences between capsule and clutch size among individuals, however I was unable to detect correlations between individual capsular volume, or total capsular volume produced over a defined time frame, and maternal size. Differences in capsule volume predict differences in maternal investment. In order to evaluate the effects of the observed differences in maternal investment on offspring viability and size I removed different volumes of intracapsular fluid from selected egg capsules and observed the effects on the resulting juvenile. If there was no trade off between parental investment and juvenile viability, then we would expect mothers to contribute to each egg the minimum amount of nutrients required for the juvenile to survive and hatch. In *Physa acuta* capsular volume could be decreased to less than 40% of its original size and still result in viable juvenile. These manipulated hatchlings were on average smaller than their unaltered siblings. This suggests that there is an evolutionary fitness benefit to producing offspring larger than the minimum size necessary for survival.